HILL HIGH SCHOOL DATABASE ANALYSIS (GRADE 12)
(SQL ANALYSIS)

Data Analyst: Odudu Ochuko Richie

INTRODUCTION

A student database is important for ensuring efficient administration, tracking student progress, facilitating communication, and making informed decisions regarding academic planning and support services.

This is an SQL analysis on a student database with a primary focus on grade 12 students. This student database (for Grade 12) serves as a central repository for storing and managing various types of data related to Hill High School (Grade 12 students), including personal information, academic records, attendance, and other relevant data.

Overall, a well-designed student database enhances efficiency, accuracy, and transparency in managing academic information, supporting informed decision-making, and improving the overall educational experience for students, faculty, and administrators.

Dataset: For this project, I built a sample dataset that contains the following variables:

1. Student_Id
2. Student_Name
3. Age
4. Gender
5. Grade_Level
6. Desk_Id
7. Classroom_Id
8. Classroom_Remark
9. No_Attendnce (A perfect attendance for a semester is 180)
10. Courses_Attendance
11. Percentage
12. Grade_Point_Scale
13. GPA
14. GPA-Remarks
15. Result_Id
16. Student Courses**:**

    (English, Mathematics, Science, Social_Studies, General_Elective, Foreign_Language, Advanced_Placement_(AP)_Courses, Career_And_Technical_Education_(CTE)_Courses).

HILL HIGH SCHOOL DATABASE ERD DIAGRAM FOR MY ANALYSIS
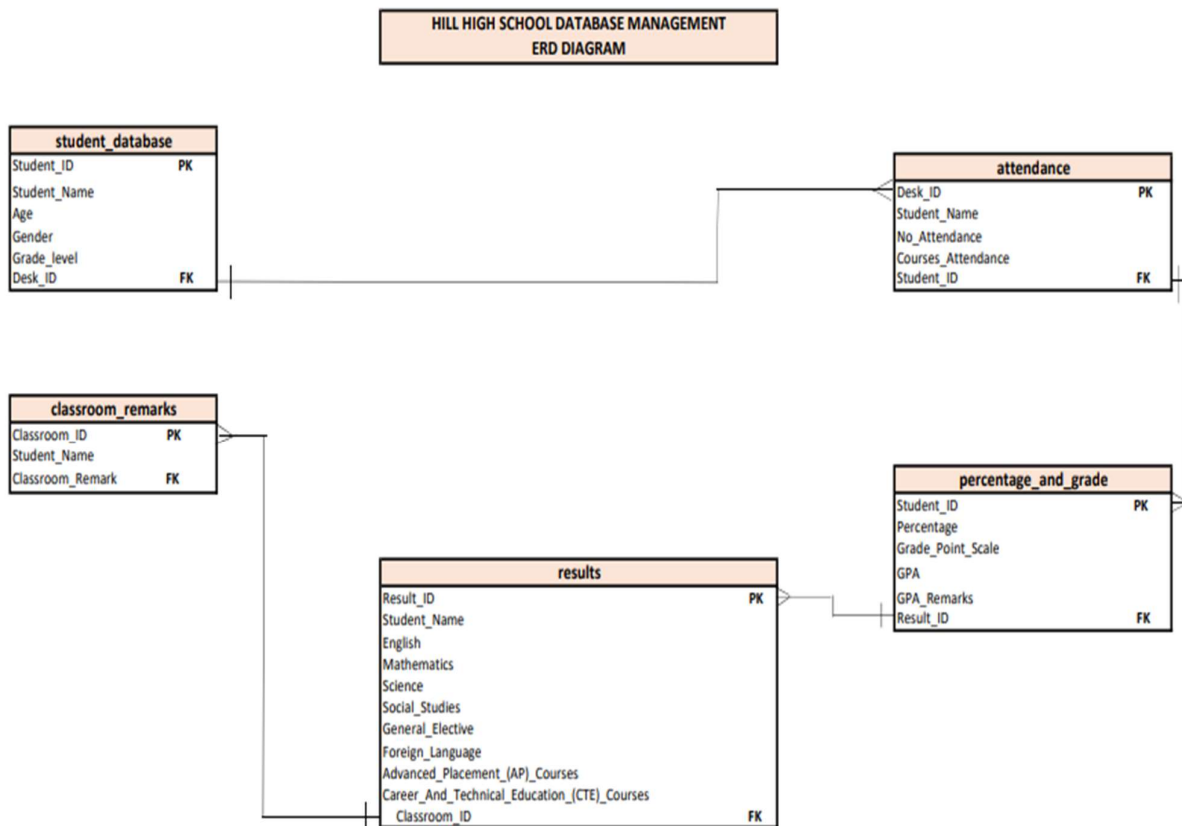

USES OF THE ERD DIAGRM FOR THIS ANALYSIS

1. To have a full picture of the entire database schema
2. To help in visualizing the entities, their attributes, and the relationships between them.
3. To help in defining the relationships between tables
4. To understand the kind of datatype in each column
5. To provide a clear, visual representation of data structures.

DATABASE FOR MY ANALYSIS: MySQL (Workbench)

WHY USING MYSQL REVERSE ENGINEER FOR GENERATING AN ERD DIAGRAM

The ERD serves as documentation for the MySQL database, capturing its structure and relationships in a clear and concise format. The ERD generated through reverse engineering provides a visual representation of the database schema, making it easier to understand and analyze the relationships between different entities.

# HILL HIGH SCHOOL MYSQL ERD DIAGRAM USING REVERSE ENGINEER
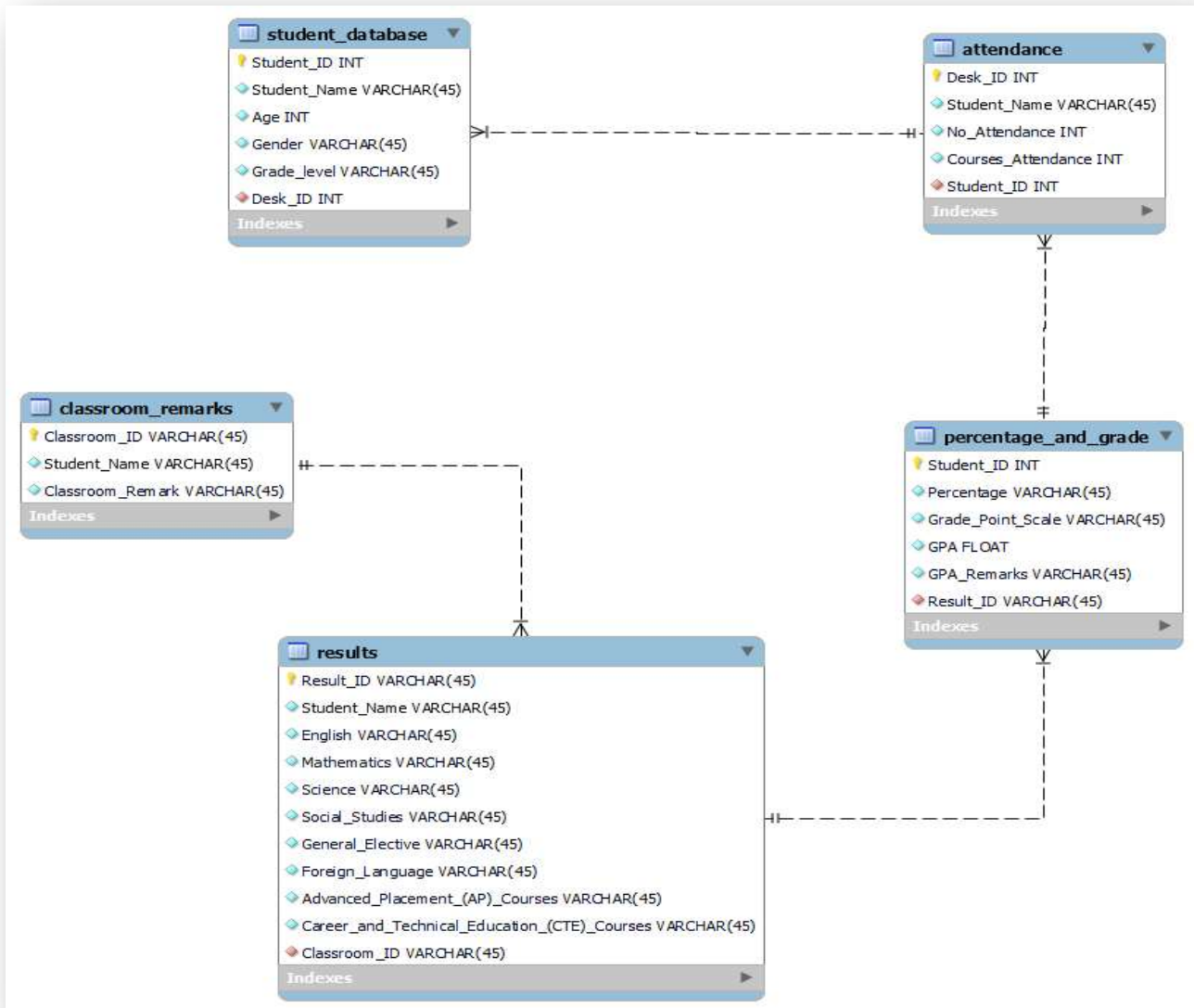
QUESTION(S) TO BE ANSWERED

1. What is the total number of students in Grade 12?

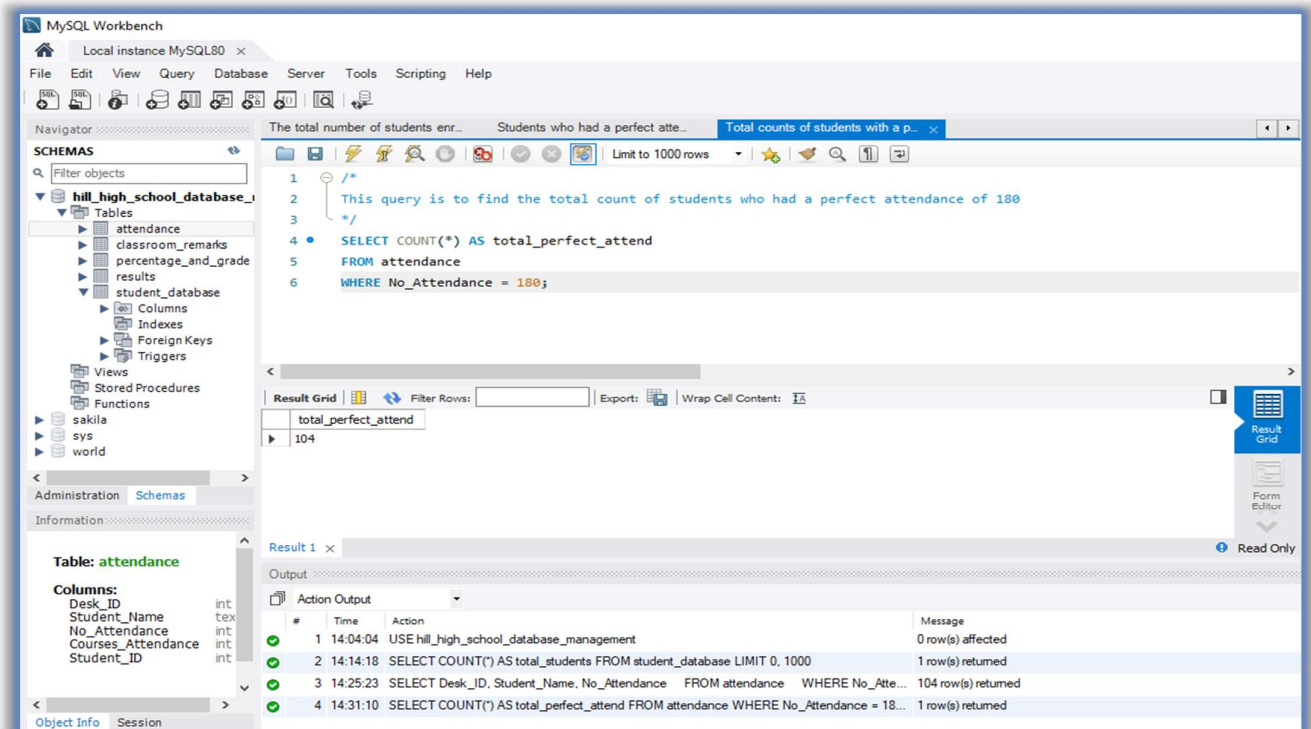2. What is the total count of students who had a perfect attendance of 180?

3. What is the number of students that had an 'active' classroom remark?

4. What is the number of students that had a 'non-active' classroom remarks?

5. What is the number of students that had a 'playful' classroom remark?

6. Display the student GPAs and their number of attendance and LIMIT by 15

7. Group and count all student GPAs according to their level of performance.

8. How many students had distinctions in their English, Mathematics, and Science courses?

9. How many students failed their English, Mathematics, and Science courses?

10. What is the total number of students in each age group in Grade 12?

11. Students who had a percentage of 97-100 with an A+ as a grade point scale, limit rows to 15.

DATA ANALYSIS

1. **What is the Total Number of Students in Grade 12?**

   Grade 12 is the final class of Hill High School, which after the successful completion of the high school diploma you can then move into college. Using the **SELECT Count (*)** statement we want to know the total number of students who enrolled in Grade 12 at Hill high School.
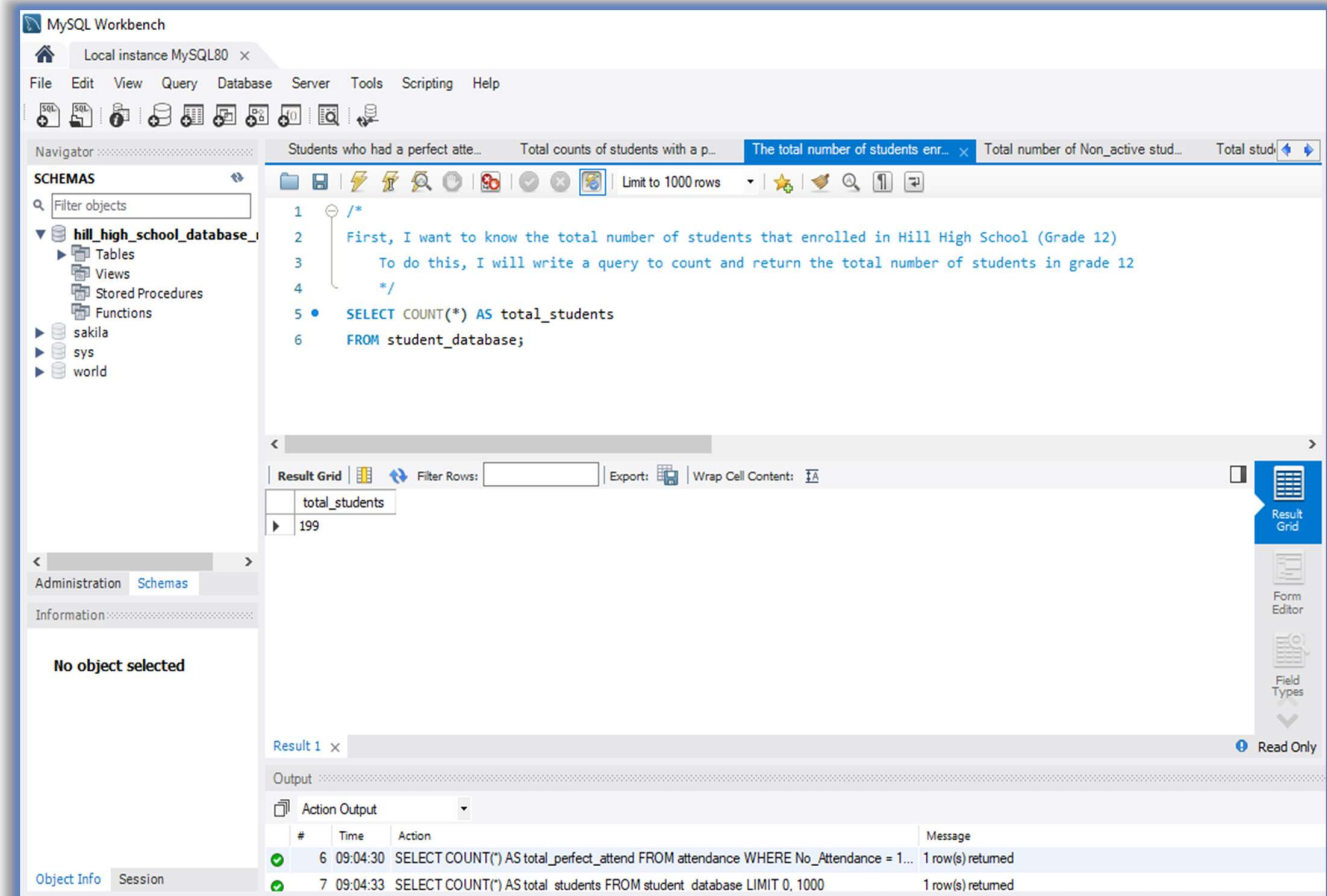
The total number of students in Grade 12 of Hill High School is **199.**

2. **What is the Total Count of Students Who had a Perfect Attendance of 180?**

   The next question is to look for how many students had a perfect attendance record throughout the semester. In Hill High School, an attendance of 180 is a perfect attendance for a student. Students are to attend classes in a semester a minimum of 170 times and a maximum of 180 times to have a good assessment.

   Students who had an attendance below 170 may likewise have a poor result and report at the end of the semester. For students to graduate with a high school diploma certificate, there are certain requirements, one of which is having a minimum attendance of 170. Having a maximum of 180 attendance shows the focus and studiousness of that student. So here we are going to find out the students and the total count of students who had perfect attendance of 180.
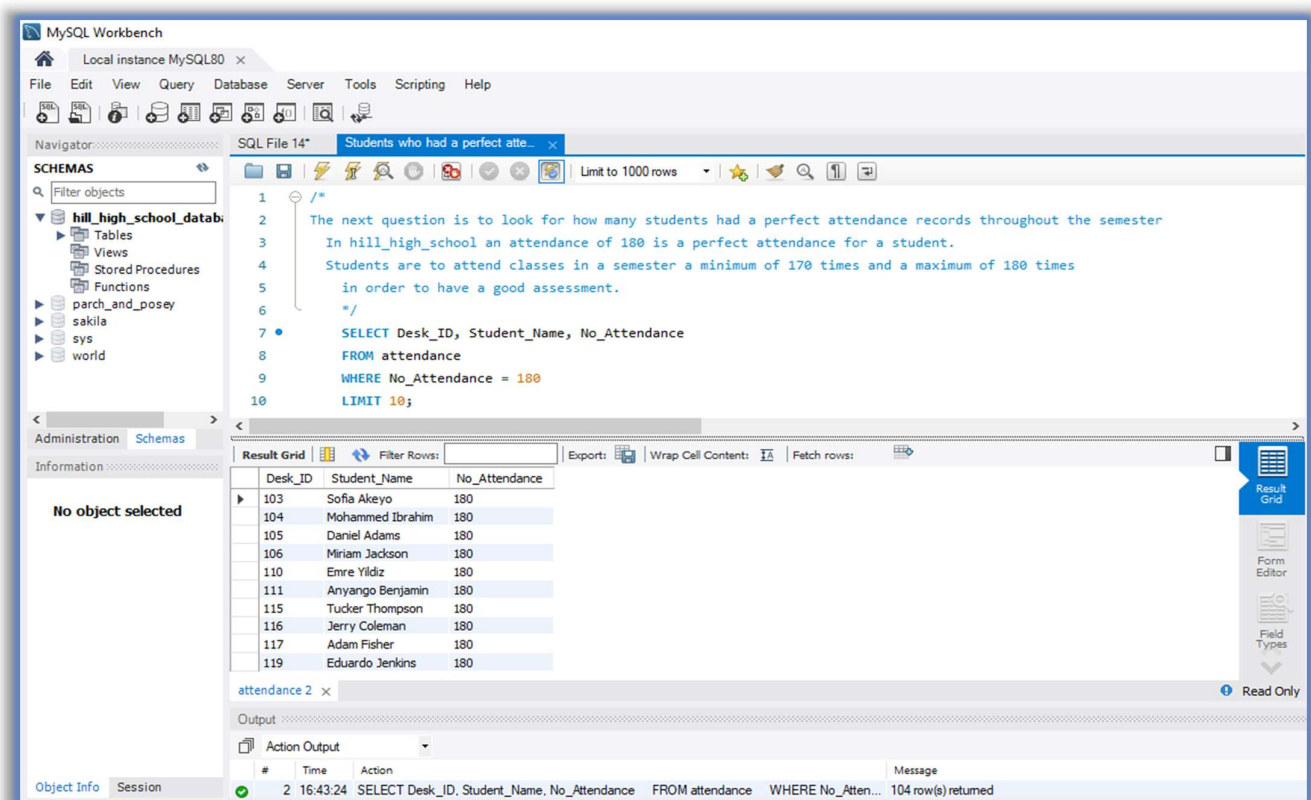
In order to find the total count of student who had a perfect attendance of 180, we will have to use the **SELECT COUNT (*)** statement.
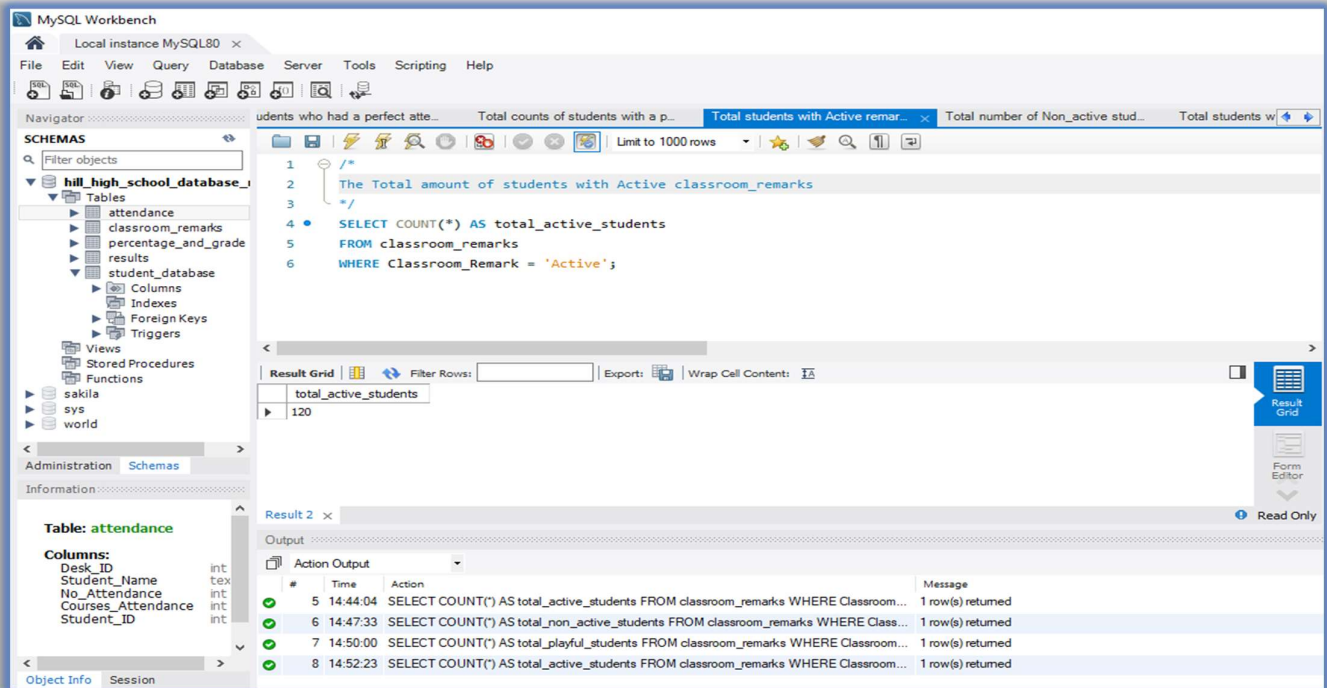
We can see the analysis in the diagram below:

We then noticed that the total amount of students in Grade 12 who had a perfect attendance of 180 was 104 out of a total student of 199. (**104 students had a perfect attendance of 180).**

3. **What is the Number of Students that had an 'Active' Classroom Remark?**

In each grade there must be a classroom remark for each student, here I want to find out the students who had an 'Active' classroom remark in Grade 12 which indicates seriousness.

The total number of students with an 'Active' classroom remark in Hill High School Grade 12 was **120.**

4. **What is the Number of Students that had a 'Non-Active' Classroom Remark?**

I want to find out the students who had a 'Non-Active' classroom remark in Grade 12 which indicates unseriousness.

The total number of students with a 'Non-Active' classroom remark in Hill High School Grade 12 was **36.**

5. What is the Number of Students that had a 'Playful' Classroom Remark?

Here, I want to find out the total number of students with a 'Playful' remark that indicates very unserious behavior.

The total number of students that had a 'Playful' remark was 13

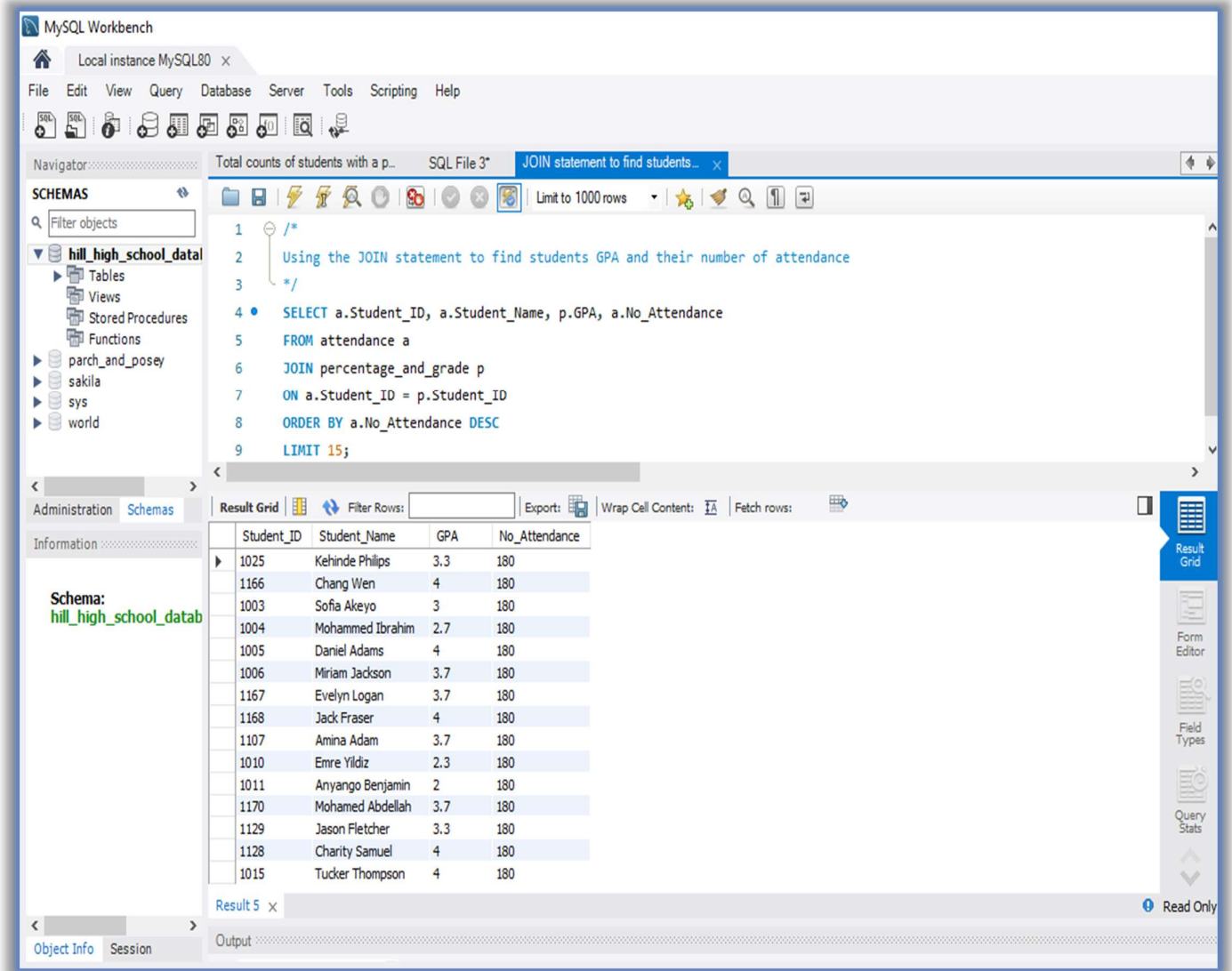**6. What is the Number of Students that had an 'Unserious' Classroom Remark?**

This is the total number of students with an 'Unserious' remark that indicates very unserious and bad behavior.

7. Display the Students GPA and their Number of Attendance, Limit by 15.

In this section, I used the JOIN statement to join two tables attendance and percentage_and_grade to get the GPA and number of attendance of students, I limited my rows to 15 and sorted my data by the highest number of attendances in that semester. The insights show that not all students with a perfect attendance of 180 had a powerful GPA. This is also vice versa if we sort our data by GPA.

8. Group and Count all Student GPAs According to their Level of Performance.

In this section, I will use a CASE statement to group all the students in grade 12 according to their GPA performance and then count all the students in each category of their grouped performance.
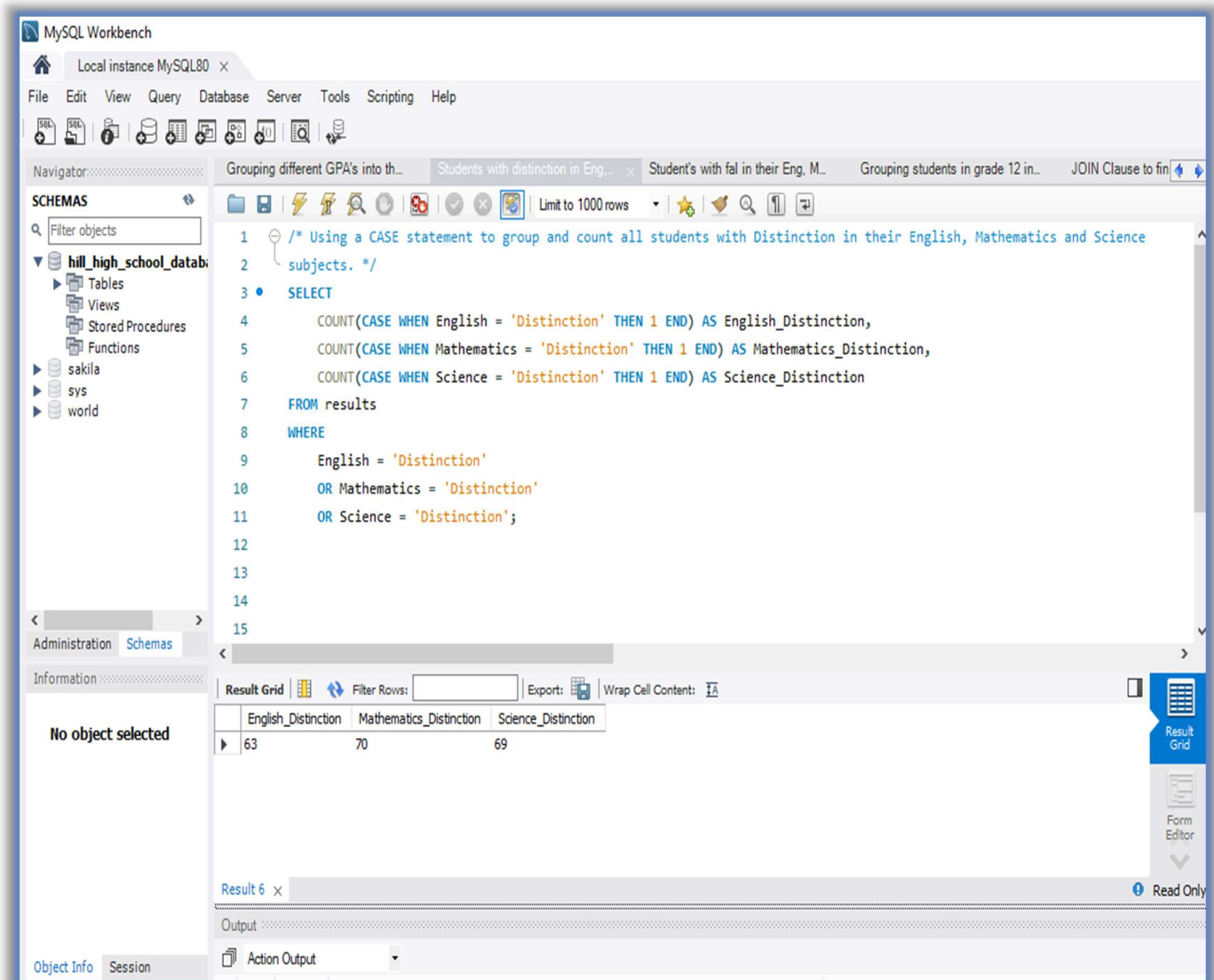
NOTE: A CASE statement in SQL is a conditional expression that allows you to perform different actions based on different conditions. You can use it in various scenarios. For instance, you can use it to categorize data which I am going to be doing in this analysis. Using a CASE statement to categorize data into their different GPA level of performance.
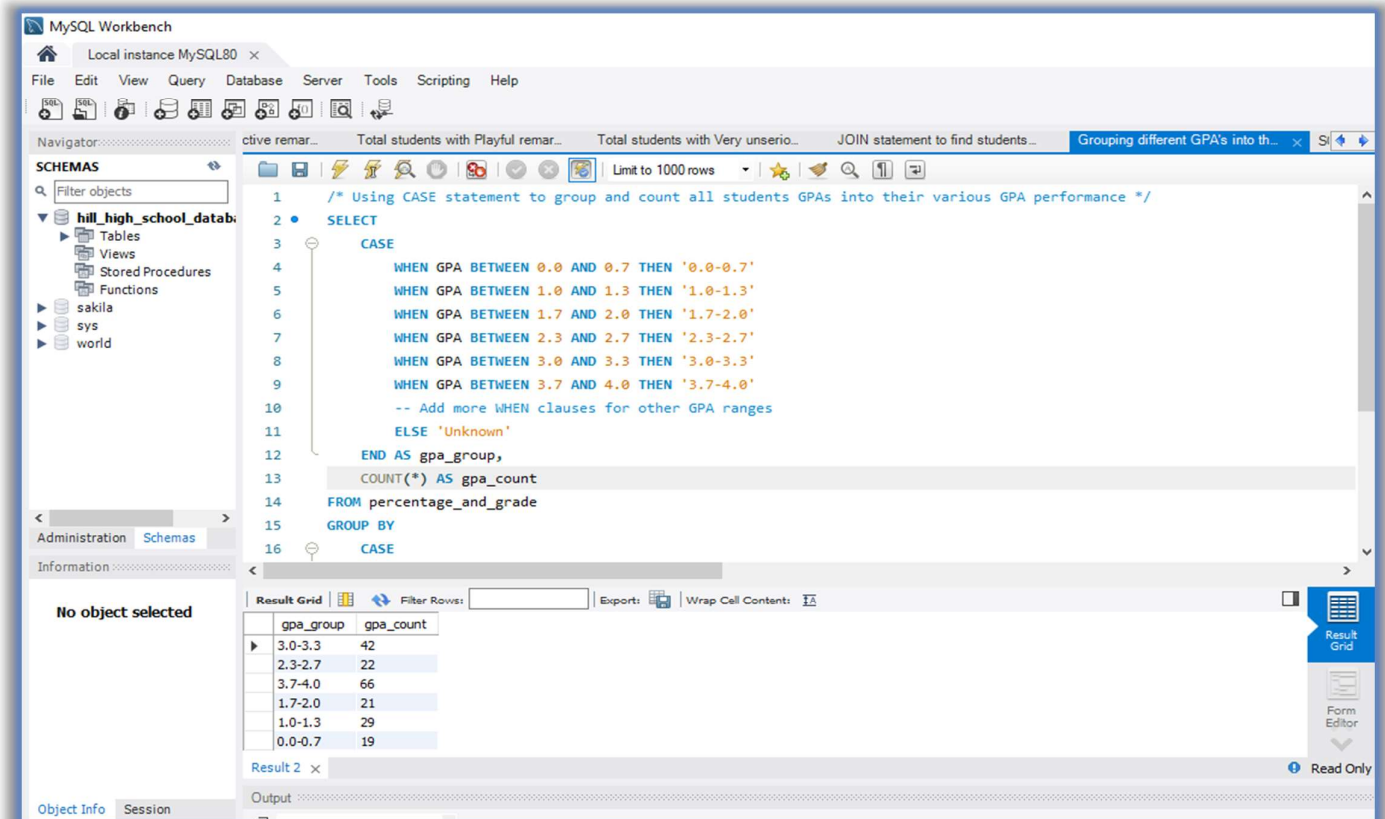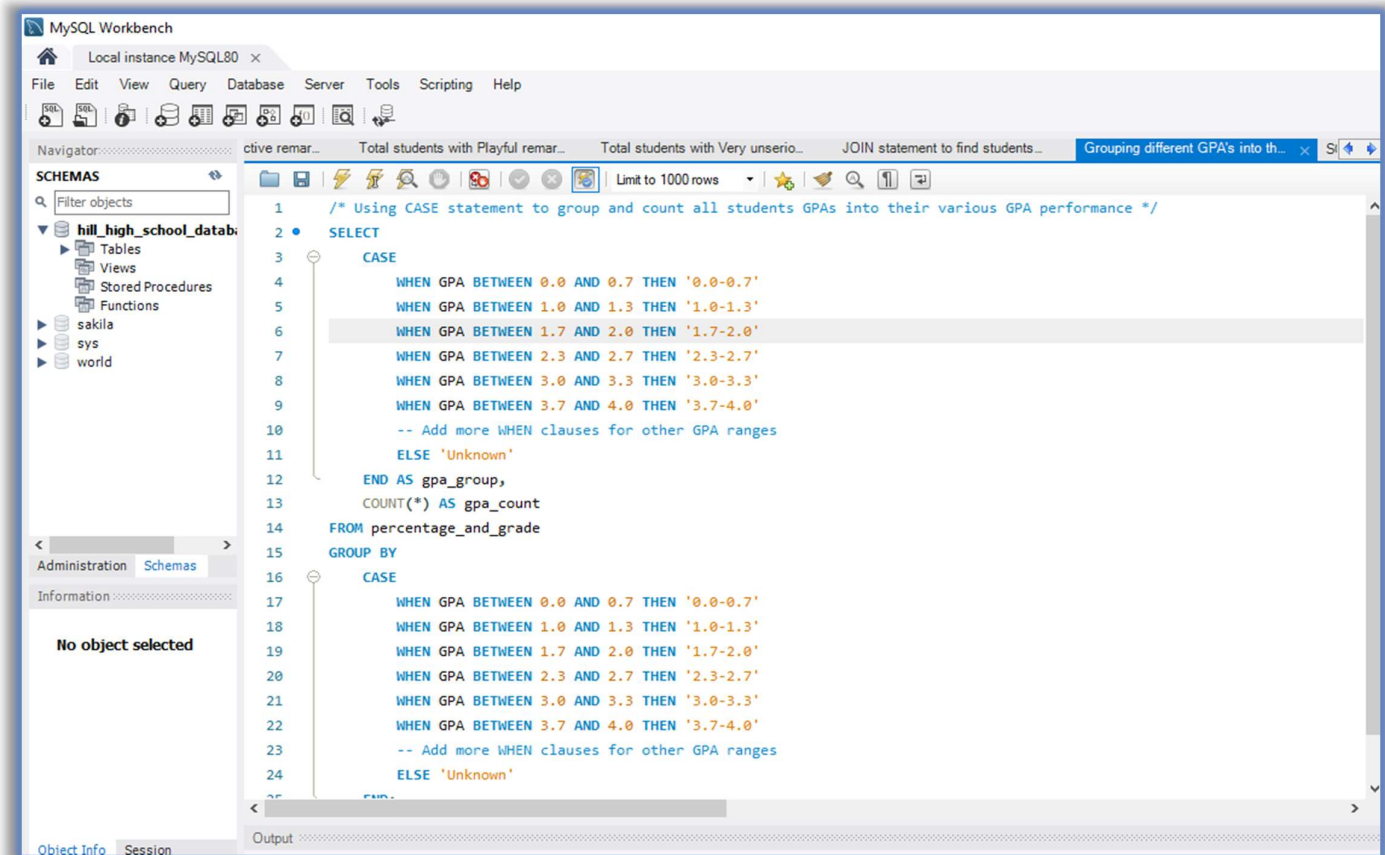
From this insight we can see that students in Grade 12 did extremely well. I noticed this after using the CASE statement to group each student into their various GPA range. The GPA range of 3.7 – 4.0 had the highest number of students, with 66 students having a GPA range between 3.7 – 4.0.

9. How Many Students had Distinctions in their English, Mathematics, and Science Courses?

Here, I would like to know how many students had distinctions in their English, Mathematics, and Sciences courses. Distinction indicates that the student did very well in that course. I will use a CASE statement to get my insights.

Our analysis showed that out of 199 students in Grade 12, **63** students had a distinction in English, **70** students had distinctions in Mathematics, and **69** students had distinctions in Science. Mathematics had the best performance among these three subjects in Grade 12.

10. How Many Students Failed their English, Mathematics, and Science Courses?

This query statement is to find out the total number of students in Grade 12 who failed their English, Mathematics and Science courses

Our analysis showed that out of 199 students in Grade 12, **31** students failed English, **31** students had failed Mathematics, and 42 students failed Science. Science had the lowest performance among these three subjects in Grade 12.

11. What is the Total number of Students in each Age Group in Grade 12?

In this section, I want to know the total number of students in each age group, I will be using a CASE statement to group each student into their age group.
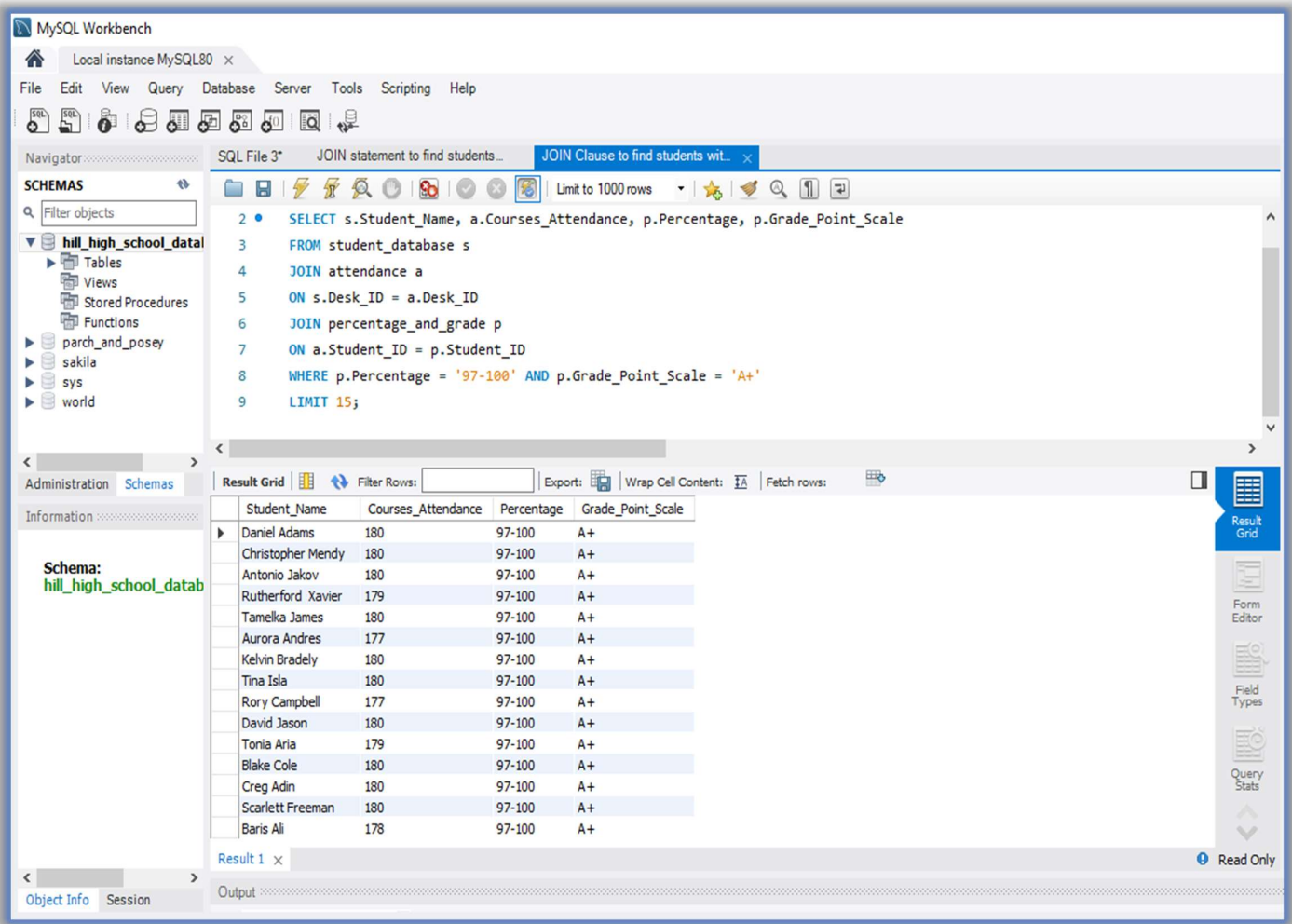
In this analysis, I found out that the age group of 17 had the highest number of students. That tells us that age 17 had the highest number of students in the Grade 12 final class. While age 18 had the second highest number of students in Grade 12 final class.

12. Students Who had a Percentage of 97-100 with an A+ as a Grade Point Scale, Limit Rows to 15.

These are the names of the students in Grade 12 who had a percentage of 97-100 and a grade point scale of A+. From this analysis, you will notice students who had good course attendance for the semester had a grade point scale of A+, even if we don't limit our rows to 15 that will still be our observation.

Number of School Attendance = Number of Course Attendance

- Maximum Number of School Attendance = 180
- Maximum Number of Course Attendance = 180
- Minimum Number of School Attendance = 170
- Minimum Number of Course Attendance = 170

GENERAL INSIGHTS FROM HILL HIGH SCHOOL (GRADE 12) DATABASE

1. 199 students enrolled at Hill High School Grade 12
2. 104 students in Hill High School Grade 12 had a perfect attendance of 180
3. 120 students were very active in the class
4. 36 students were non-active in the class
5. 13 students were very playful in the class
6. Many students had a good performance based on their GPA
7. The GPA range of 3.7 – 4.0 had the highest number of students, with 66 students having a GPA range between 3.7 – 4.0, making the class academic performance a very good one
8. Mathematics course had more students with distinctions (based on the three most important courses, English, Mathematics, and Science).
9. Science course had more students who failed (based on the three most important courses, English, Mathematics, and Science).
10. The age group of 17 years had the highest number of enrolled students in Grade 12.
11. Most students who had a minimum course attendance of 170 and maximum course attendance of 180 had a percentage of 97-100 and a Grade Point Scale of A+.